



House Built Above Building Codes Stood Strong Against the Wind

Full Mitigation Best Practice Story

Harris County, Texas

Shoreacres, TX – In 2002, when David and Cynthia Garza decided to build their 2,200-square-foot dream home, they had no idea the road to achieving their dream would be paved with building codes. Initially frustrated by the requirements, they later credited the city's "hard-nosed" building inspector for their home's survival during Hurricane Ike (2008).



Their land sits in a low, coastal area less than a mile from Trinity Bay, so the Garzas decided to build on higher ground by adding fill to the construction site. They brought in dirt to create a raised pad, which they assumed was at or above the base flood elevation (BFE), the level that can be reached by a flood that has a 1-percent chance of occurring in any year.

"We had already put our form up when the building inspector walked out here and told us we were a foot too low," David said. "I asked, 'How can you tell? You are just looking.' He was really hard-nosed."

The inspector then asked the Garzas whether they had obtained an elevation certificate, an important tool in floodplain management that documents the elevation of a structure in relation to the BFE. David said, "When I told him I hadn't, he says, 'So you've got two choices: You can go ahead and pour the cement and be told it's too low, or you can stop right now, get your Certificate of Elevation and continue building.'"

Although they were angry and annoyed, the Garzas decided to get the certificate. "Oh boy, I was mad," David said. "The additional elevation would cost more money. I also had to make certain that the land sloped so that I wouldn't flood my neighbors out."

The survey done for the certificate showed that although the house was at the BFE of 11 feet, it was still one foot too low. The City of Shoreacres requires a foot of "freeboard," an additional amount of height above the BFE that provides added protection and can result in lower flood insurance rates. In the end, the Garzas elevated their home approximately nine inches above the city's 12-foot requirement—well above the level needed for flood insurance.

The Garzas also became frustrated with the building inspector during the framing process.

"Although I thank him now, because my house is sturdy, I had some choice words for him," David said. "He comes up and says, 'You have to strap this, you have to tie that down, you have to wrap that.' Oh man, he was tough. He and my builder were always butting heads."

Determined not to have more problems with the inspector, the builder "went overboard," David said. "He tied down, strapped, and wrapped everything. We showed him."

In September 2008, Hurricane Ike brought tremendous winds and a 12-foot storm surge to Shoreacres, dismantling waterfront properties and flooding approximately 575 of the town's 650 homes. Some of the Garzas' neighbors got more than three feet of water, while floodwaters reached within five feet of David and Cynthia's front door.

Now, David has nothing but kudos for building inspectors. "We complained nonstop, but we thank them now," he said. "They knew what they were doing. Everybody who has built since us did not get flooded."

David feels that strong codes enable people to live near the coast. He said, "People are saying, 'I wouldn't build down there,' and I tell them, if you build according to the codes, you will be all right. That's what the codes are there for."

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region VI**

State: **Texas**

County: **Harris County**

City/Community: **Shoreacres**

Key Activity/Project Information

Sector: **Private**

Hazard Type: **Flooding; Hurricane/Tropical Storm; Coastal Storm**

Activity/Project Type: **Building Codes; Elevation, Structural**

Structure Type: **Masonry, Reinforced**

Activity/Project Start Date: **03/2002**

Activity/Project End Date: **04/2003**

Funding Source: **Homeowner**

Funding Recipient: **Property Owner - Residential**

Activity/Project Economic Analysis

Cost: **Amount Not Available**

Non FEMA Cost: **0**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **No**

Value Tested By Disaster? **Yes**

Tested By Federal Disaster #: **1791 , 09/13/2008**

Repetitive Loss Property? **No**

Reference URLs

Reference URL 1: **<http://www.fema.gov/business/nfip/index.shtm>**

Reference URL 2: **<http://www.msc.fema.gov>**

Main Points

No Main Points were entered.



The Garzas home was elevated nearly a foot above the BFE for Shoreacres